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2010 : April 2010 - Fast Breaking Papers : Michael J. Sailor Discusses His Work With Nanoparticles

FAST BREAKING PAPERS - 2010

April 2010



Michael J. Sailor talks with *ScienceWatch.com* and answers a few questions about this month's Fast Breaking Paper in the field of Materials Science.

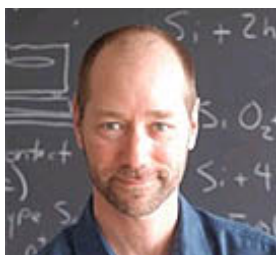


Photo by Erika Kyte Walsh

Article Title: Biodegradable luminescent porous silicon nanoparticles for in vivo applications

Authors: Park, JH;Gu, L;von Maltzahn, G;Ruoslahti, E;Bhatia, SN;Sailor, MJ

Journal: NAT MATER, Volume: 8, Issue: 4, Page: 331-336, Year: APR 2009

* Univ Calif San Diego, Dept Chem & Biochem, La Jolla, CA 92093 USA.

* Univ Calif San Diego, Dept Chem & Biochem, La Jolla, CA 92093 USA.

(addresses have been truncated.)

SW: Why do you think your paper is highly cited?

It is the first biodegradable fluorescent (quantum dot) nanoparticle to safely image tumors and organs in live mice that could be used for cancer detection and treatment in humans.

SW: Would you summarize the significance of your paper in layman's terms?

It is the first intrinsically luminescent nanoparticle that was purposely designed to minimize toxic side effects. This new design meets a growing need for non-toxic alternatives that have a chance to make it into the clinic to treat human patients.

SW: Where do you see your research leading in the future?


The goal is to use the nanoparticles to chaperone the drug directly to the tumor, to release it into the tumor rather than other parts of the body.

Professor Michael J. Sailor
 Department of Chemistry and Biochemistry
 Department of Bioengineering
 Department of Nanoengineering
 University of California, San Diego
 La Jolla, CA, USA

[Web](#) | [Podcast](#)

KEYWORDS: SEMICONDUCTOR QUANTUM DOTS; MAGNETIC NANOPARTICLES; CARBON NANOTUBES; CELLS; MICE; NANOCRYSTALS; FABRICATION; CLEARANC.



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2010 : [April 2010 - Fast Breaking Papers](#) : Michael J. Sailor Discusses His Work With Nanoparticles

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Fast Breaking Papers : 2010 : April 2010 - Fast Breaking Papers

FAST BREAKING PAPERS - 2010

April 2010

ScienceWatch.com has tracked the following Fast Breaking Papers which had the highest percentage increase in citations in *Essential Science Indicators*SM of Thomson Reuters from the fifth bimonthly period of 2009 to the sixth bimonthly period of 2009.



Some papers have comments sent in by the author(s) of the paper which may include images and descriptions of their work.

**Fast Breaking Paper Comment by: Graeme L. Hammer****Field: Agricultural Sciences**

Article Title: Can Changes in Canopy and/or Root System Architecture Explain Historical Maize Yield Trends in the US Corn Belt?

Authors: **Hammer, GL**; Dong, ZS; McLean, G; Doherty, A; Messina, C; Schusler, J; Zinselmeier, C; Paszkiewicz, S; Cooper, M

Journal: CROP SCI

Volume: 49

Issue: 1

Page: 299-312

Year: JAN-FEB 2009

* Univ Queensland, Sch Land Crop & Food Sci, Agr Prod Syst Res Unit, Brisbane, Qld 4072, Australia.

* Univ Queensland, Sch Land Crop & Food Sci, Agr Prod Syst Res Unit, Brisbane, Qld 4072, Australia.

* Pioneer HiBred Int Inc, Johnston, IA 50131 USA.

* APSRU, Dep Primary Ind & Fisheries, Toowoomba, Qld 4350, Australia.

**Fast Breaking Paper Comment by: James J. Collins****Field: Biology & Biochemistry**

Article Title: Diversity-based, model-guided construction of synthetic gene networks with predicted functions

Authors: Ellis, T; Wang, X; **Collins, JJ**

Journal: NAT BIOTECHNOL

Volume: 27

Issue: 5

Page: 465-471

Year: MAY 2009

* Boston Univ, Howard Hughes Med Inst, Boston, MA 02215 USA.

* Boston Univ, Howard Hughes Med Inst, Boston, MA 02215 USA.

* Boston Univ, Dept Biomed Engr, Ctr BioDynam, Boston, MA 02215 USA.

* Boston Univ, Ctr Adv Biotechnol, Boston, MA 02215 USA.

**Fast Breaking Paper Comment by: Andrew B. Holmes****Field: Chemistry**

Article Title: Synthesis of Light-Emitting Conjugated Polymers for Applications in

**Electroluminescent Devices**

Authors: Grimsdale, AC;Chan, KL;Martin, RE;Jokisz, PG;**Holmes, AB**

Journal: CHEM REV

Volume: 109

Issue: 3

Page: 897-1091

Year: MAR 2009

* Univ Melbourne, Inst Bio21, Sch Chem, 30 Flemington Rd, Melbourne, Vic 3010, Australia.

* Univ Melbourne, Inst Bio21, Sch Chem, Melbourne, Vic 3010, Australia.

* Nanyang Technol Univ, Sch Mat Sci & Engr, Singapore 639798, Singapore.

* A STAR, Singapore 117602, Singapore.

* F Hoffmann La Roche & Co Ltd, Div Pharmaceut, CH-4070 Basel, Switzerland.

**Fast Breaking Paper Comment by: Rogelio Perez-Padilla****Field: Clinical Medicine**

Article Title: Pneumonia and Respiratory Failure from Swine-Origin Influenza A (H1N1) in Mexico

Authors: **Perez-Padilla, R**;de la Rosa-Zamboni, D;de Leon, SP;Hernandez, M;Quinones-Falconi, F;Bautista, E;Ramirez-Venegas, A;Rojas-Serrano, J;Ormsby, CE;Corrales, A;Higuera, A;Mondragon, E;Cordova-Villalobos, JA;INER Working Grp Influenza

Journal: N ENGL J MED

Volume: 361

Issue: 7

Page: 680-689

Year: AUG 13 2009

* Inst Nacl Enfermedades Resp, Tlalpan 4502, Mexico City 14080, DF, Mexico.

* Inst Nacl Enfermedades Resp, Mexico City 14080, DF, Mexico.

* Biol & React Mexico BIRMEX, Mexico City, DF, Mexico.

* Secretariat Hlth, Mexico City, DF, Mexico.

Field: Computer Science

Article Title: A Fictitious Time Integration Method for the Numerical Solution of the Fredholm Integral Equation and for Numerical Differentiation of Noisy Data, and Its Relation to the Filter Theory

Authors: Liu, CS;Atluri, SN

Journal: CMES-COMPUT MODEL ENG SCI

Volume: 41

Issue: 3

Page: 243-261

Year: MAR 2009

* Natl Taiwan Univ, Dept Civil Engr, Taipei 10764, Taiwan.

* Natl Taiwan Univ, Dept Civil Engr, Taipei 10764, Taiwan.

* Univ Calif Irvine, Ctr Aerosp Res & Educ, Irvine, CA USA.

**Fast Breaking Paper Comment by: Ian Preston, Richard Blundell, & Luigi Pistaferri****Field: Economics & Business**

Article Title: Consumption Inequality and Partial Insurance

Authors: **Blundell, R;Pistaferri, L;Preston, I**

Journal: AMER ECON REV

Volume: 98

Issue: 5

Page: 1887-1921

Year: DEC 2008

* UCL, Dept Econ, Gower St, London WC1E 6BT, England.

* UCL, Dept Econ, London WC1E 6BT, England.

* Stanford Univ, Dept Econ, Stanford, CA 94305 USA.

**Fast Breaking Paper Comment by: Ayhan Demirbas****Field: Engineering**

Article Title: Progress and recent trends in biodiesel fuels

Authors: **Demirbas, A**

Journal: ENERG CONV MANAGE

Volume: 50

Issue: 1
 Page: 14-34
 Year: JAN 2009
 * Selcuk Univ, TR-42031 Konya, Turkey.
 * Sila Sci, Trabzon, Turkey.



Fast Breaking Paper Comment by: Patrik Nosil

Field: Environment/Ecology

Article Title: Divergent selection and heterogeneous genomic divergence

Authors: **Nosil, P**; Funk, DJ; Ortiz-Barrientos, D

Journal: MOL ECOL

Volume: 18

Issue: 3

Page: 375-402

Year: FEB 2009

- * Inst Adv Study, Wissenssch Kolleg Berlin, Wallostr 19, D-14193 Berlin, Germany.
- * Univ British Columbia, Dept Zool, Vancouver, BC V6T 1Z4, Canada.
- * Univ British Columbia, Biodivers Res Ctr, Vancouver, BC V6T 1Z4, Canada.
- * Vanderbilt Univ, Dept Biol Sci, Nashville, TN 37235 USA.
- * Univ Queensland, Sch Integrat Biol, St Lucia, Qld 4702, Australia.

Field: Geosciences

Article Title: Obliquity-paced Pliocene West Antarctic ice sheet oscillations

Authors: Naish, T; Powell, R; Levy, R; Wilson, G; Scherer, R; Talarico, F; Krissek, L; Niessen, F; Pompilio, M; Wilson, T; Carter, L; DeConto, R; Huybers, P; McKay, R; Pollard, D; Ross, J; Winter, D; Barrett, P; Browne, G; Cody, R; Cowan, E; Crampton, J; Dunbar, G; Dunbar, N; Florindo, F; Gebhardt, C; Graham, I; Hannah, M; Hansaraj, D; Harwood, D; Helling, D; Henrys, S; Hinnov, L; Kuhn, G; Kyle, P; Laufer, A; Maffioli, P; Magens, D; Mandernack, K; McIntosh, W; Millan, C; Morin, R; Ohneiser, C; Paulsen, T; Persico, D; Raine, I; Reed, J; Riesselman, C; Sagnotti, L; Schmitt, D; Sjunneskog, C; Strong, P; Taviani, M; Vogel, S; Wilch, T; Williams, T

Journal: NATURE

Volume: 458

Issue: 7236

Page: 322-U84

Year: MAR 19 2009

- * Victoria Univ Wellington, Antarctic Res Ctr, POB 600, Wellington 6012, New Zealand.
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- * GNS Sci, Lower Hutt 5040, New Zealand.
- * No Illinois Univ, Dept Geog & Environm Geosci, De Kalb, IL 60115 USA.
- * Univ Nebraska, Dept Geosci, ANDRILL Sci Management Off, Lincoln, NE 68588 USA.
- * Univ Otago, Dept Geol, Dunedin 9001, Otago, New Zealand.
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- * Univ Massachusetts, Dept Geosci, Morrell Sci Ctr 233, Amherst, MA 01003 USA.
- * Harvard Univ, Dept Earth & Planetary Sci, Cambridge, MA 02138 USA.
- * Penn State Univ, Earth & Environm Syst Inst, University Pk, PA 16802 USA.
- * New Mexico Inst Min & Technol, Socorro, NM 87801 USA.
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- * Univ Milano Bicocca, Dipartimento Sci Geol & Geotecnol, I-20126 Milan, Italy.
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- * US Geol Survey, Denver, CO 80225 USA.
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- * Stanford Univ, Sch Earth Sci, Dept Geol & Environm Sci, Stanford, CA 94305 USA.
- * Univ Alberta, Dept Phys, Edmonton, AB T6G 2G7, Canada.
- * Louisiana State Univ, Dept Geol & Geophys, Baton Rouge, LA 70803 USA.
- * ISMAR Bologna, CNR, I-40129 Bologna, Italy.
- * Albion Coll, Dept Geol, Albion, MI 49224 USA.

* Columbia Univ, Lamont Doherty Earth Observ, Palisades, NY 10964 USA.

Field: Immunology

Article Title: Immunological and Inflammatory Functions of the Interleukin-1 Family

Authors: Dinarello, CA

Journal: ANNU REV IMMUNOL

Volume: 27

Issue:

Page: :519-550

Year: 2009

* Univ Colorado Denver, Dept Med, Div Infect Dis, Aurora, CO 80045 USA.

* Univ Colorado Denver, Dept Med, Div Infect Dis, Aurora, CO 80045 USA.



Fast Breaking Paper Comment by: Michael J. Sailor

Field: Materials Science

Article Title: Biodegradable luminescent porous silicon nanoparticles for in vivo applications

Authors: Park, JH;Gu, L;von Maltzahn, G;Ruoslahti, E;Bhatia, SN; **Sailor, MJ**

Journal: NAT MATER

Volume: 8

Issue: 4

Page: 331-336

Year: APR 2009

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* Univ Calif Santa Barbara, Burnham Inst Med Res, Santa Barbara, CA 93106 USA.

* Brigham & Womens Hosp, Div Med, Boston, MA 02115 USA.

* Univ Calif San Diego, Dept Bioengn, La Jolla, CA 92093 USA.

Field: Mathematics

Article Title: Discrete nonlinear hyperbolic equations. Classification of integrable cases

Authors: Adler, V;Bobenko, A;Suris, Y

Journal: FUNCT ANAL APPL-ENGL TR

Volume: 43

Issue: 1

Page: 3-17

Year: MAR 2009

* Tech Univ Berlin, Inst Math, D-1000 Berlin, Germany.

* Tech Univ Munich, Zentrum Math, D-8000 Munich, Germany.

Field: Microbiology

Article Title: Principles of c-di-GMP signalling in bacteria

Authors: Hengge, R

Journal: NAT REV MICROBIOL

Volume: 7

Issue: 4

Page: 263-273

Year: APR 2009

* Free Univ Berlin, Inst Biol Mikrobiol, D-14195 Berlin, Germany.

* Free Univ Berlin, Inst Biol Mikrobiol, D-14195 Berlin, Germany.

Field: Molecular Biology & Genetics

Article Title: Regulatory RNAs in Bacteria

Authors: Waters, LS;Storz, G

Journal: CELL

Volume: 136

Issue: 4

Page: 615-628

Year: FEB 20 2009

* Eunice Kennedy Shriver Natl Inst Child Hlth & Hum, Cell Biol & Metab Program, Bethesda, MD

20892 USA.

* Eunice Kennedy Shriver Natl Inst Child Hlth & Hum, Cell Biol & Metab Program, Bethesda, MD 20892 USA.



Fast Breaking Paper Comment by: Luigi Colombo & Rodney S. Ruoff

Field: Multidisciplinary

Article Title: Large-Area Synthesis of High-Quality and Uniform Graphene Films on Copper Foils

Authors: Li, XS;Cai, WW;An, JH;Kim, S;Nah, J;Yang, DX;Piner, R;Velamakanni, A;Jung, I;Tutuc, E;Banerjee, SK;**Colombo, L;Ruoff, RS**

Journal: SCIENCE

Volume: 324

Issue: 5932

Page: 1312-1314

Year: JUN 5 2009

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* Univ Texas Austin, Dept Mech Engr, Austin, TX 78712 USA.

* Univ Texas Austin, Texas Mat Inst, Austin, TX 78712 USA.

* Univ Texas Austin, Dept Elect & Comp Engr, Microelect Res Ctr, Austin, TX 78758 USA.

Field: Neuroscience & Behavior

Article Title: Melanin-concentrating hormone neurons discharge in a reciprocal manner to orexin neurons across the sleep-wake cycle

Authors: Hassani, OK;Lee, MG;Jones, BE

Journal: PROC NAT ACAD SCI USA

Volume: 106

Issue: 7

Page: 2418-2422

Year: FEB 17 2009

* McGill Univ, Montreal Neurol Inst, Dept Neurol & Neurosurg, Montreal, PQ H3A 2B4, Canada.

* McGill Univ, Montreal Neurol Inst, Dept Neurol & Neurosurg, Montreal, PQ H3A 2B4, Canada.

* Kyungpook Natl Univ, Sch Med, Dept Pharmacol, Taegu 700422, South Korea.

Field: Pharmacology & Toxicology

Article Title: Novobiocin and Additional Inhibitors of the Hsp90 C-Terminal Nucleotide-binding Pocket

Authors: Donnelly, A;Blagg, BSJ

Journal: CURR MEDICINAL CHEM

Volume: 15

Issue: 26

Page: 2702-2717

Year: NOV 2008

* Univ Kansas, Dept Med Chem, 1251 Wescoe Hall Dr, Malott 4070, Lawrence, KS 66045 USA.

* Univ Kansas, Dept Med Chem, Lawrence, KS 66045 USA.

Field: Physics

Article Title: A picogram- and nanometre-scale photonic-crystal optomechanical cavity

Authors: Eichenfield, M;Camacho, R;Chan, J;Vahala, KJ;Painter, O

Journal: NATURE

Volume: 459

Issue: 7246

Page: 550-U79

Year: MAY 28 2009

* CALTECH, Sr Lab Appl Phys, Pasadena, CA 91125 USA.

* CALTECH, Sr Lab Appl Phys, Pasadena, CA 91125 USA.



Fast Breaking Paper Comment by: Sean Cutler

Field: Plant & Animal Science

Article Title: Absciscic Acid Inhibits Type 2C Protein Phosphatases via the PYR/PYL Family of START Proteins

Authors: Park, SY;Fung, P;Nishimura, N;Jensen, DR;Fujii, H;Zhao, Y;Lumba, S;Santiago, J;Rodrigues,

A;Chow, TFF;Alfred, SE;Bonetta, D;Finkelstein, R;Provart, NJ;Desveaux, D;Rodriguez, PL;McCourt, P;Zhu, JK;Schroeder, JI;Volkman, BF;**Cutler, SR**

Journal: SCIENCE

Volume: 324

Issue: 5930

Page: 1068-1071

Year: MAY 22 2009

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* Univ Politecn Valencia, Inst Biol Mol & Celular Plantas, ES-46022 Valencia, Spain.

* Univ Ontario Inst Technol, Fac Sci, Oshawa, ON L1H 7K4, Canada.

* Univ Calif Santa Barbara, Dept Mol Cellular & Dev Biol, Santa Barbara, CA 93106 USA.

* Med Coll Wisconsin, Dept Biochem, Milwaukee, WI 53226 USA.

* Univ Calif Riverside, Ctr Plant Cell Biol, Riverside, CA 92521 USA.

* Univ Calif Riverside, Inst Genome Biol, Riverside, CA 92521 USA.

* Univ Calif Riverside, Dept Chem, Riverside, CA 92521 USA.

Field: Psychiatry/Psychology

Article Title: Associations of Depression With C-Reactive Protein, IL-1, and IL-6: A Meta-Analysis

Authors: Howren, MB;Lamkin, DM;Suls, J

Journal: PSYCHOSOM MED

Volume: 71

Issue: 2

Page: 171-186

Year: FEB-MAR 2009

* Univ Iowa, Dept Psychol, 11 Seashore Hall E, Iowa City, IA 52242 USA.

* Univ Iowa, Dept Psychol, Iowa City, IA 52242 USA.

Field: Social Sciences, general

Article Title: New liquid biofuels from vegetable oils via catalytic pyrolysis

Authors: Demirbas, A

Journal: ENERGY EDUC SCI TECHNOL

Volume: 21

Issue: 1-2

Page: 1-59

Year: JUN-SEP 2008

* Sila Sci, Trabzon, Turkey.

* Sila Sci, Trabzon, Turkey.



Fast Breaking Paper Comment by: David J. Thompson, Jean Ballet, Isabelle Grenier, & Seth Digel

Field: Space Science

Article Title: FERMI/LARGE AREA TELESCOPE BRIGHT GAMMA-RAY SOURCE LIST

Authors: Abdo, AA;Ackermann, M;Ajello, M;Atwood, WB;Axelsson, M;Baldini, L;**Ballet,**

J;Band, DL;Barbiellini, G;Bastieri, D;Battelino, M;Baughman, BM;Bechtol, K;Bellazzini, R;Berenji, B;Bignami, GF;Blandford, RD;Bloom, ED;Bonamente, E;Borgland, AW;Bouvier, A;Bregeon, J;Brez, A;Brigida, M;Bruehl, P;Burnett, TH;Caliandro, GA;Cameron, RA;Caraveo, PA;Casandjian, JM;Cavazzuti, E;Cecchi, C;Charles, E;Chekhtman, A;Cheung, CC;Chiang, J;Ciprini, S;Claus, R;Cohen-Tanugi, J;Cominsky, LR;Conrad, J;Corbet, R;Costamante, L;Cutini, S;Davis, DS;Dermer, CD;de Angelis, A;de Luca, A;de Palma, F;**Digel, SW**;Dormody, M;Silva, EDE;Drell, PS;Dubois, R;Dumora, D;Farnier, C;Favuzzi, C;Fegan, SJ;Ferrara, EC;Focke, WB;Frailis, M;Fukazawa, Y;Funk, S;Fusco, P;Gargano, F;Gasparrini, D;Gehrels, N;Germani, S;Giebels, B;Giglietto, N;Giommi, P;Giordano, F;Glanzman, T;Godfrey, G;**Grenier, IA**;Grondin, MH;Grove, JE;Guillemot, L;Guiriec, S;Hanabata, Y;Harding, AK;Hartman, RC;Hayashida, M;Hays, E;Healey, SE;Horan, D;Hughes, RE;Johannesson, G;Johnson, AS;Johnson, RP;Johnson, TJ;Johnson, WN;Kamae, T;Katagiri, H;Kataoka, J;Kawai, N;Kerr, M;Knodlseder, J;Kocevski, D;Kocian, ML;Komin, N;Kuehn, F;Kuss, M;Lande, J;Latronico, L;Lee, SH;Lemoine-Goumard, M;Longo, F;Loparco, F;Lott, B;Lovellette, MN;Lubrano, P;Madejski, GM;Makeev, A;Marelli, M;Mazziotta, MN;McConville, W;McEnery, JE;McGlynn, S;Meurer, C;Michelson, PF;Mitthumsiri, W;Mizuno, T;Moiseev, AA;Monte, C;Monzani, ME;Moretti, E;Morselli, A;Moskalenko, IV;Murgia, S;Nakamori, T;Nolan, PL;Norris, JP;Nuss, E;Ohno,

M;Ohsugi, T;Omidei, N;Orlando, E;Ormes, JF;Ozaki, M;Paneque, D;Panetta, JH;Parent, D;Pelassa, V;Pepe, M;Pesce-Rollins, M;Piron, F;Porter, TA;Poupard, L;Raino, S;Rando, R;Ray, PS;Razzano, M;Rea, N;Reimer, A;Reimer, O;Reposeur, T;Ritz, S;Rochester, LS;Rodriguez, AY;Romani, RW;Roth, M;Ryde, F;Sadrozinski, HFW;Sanchez, D;Sander, A;Parkinson, PMS;Scargle, JD;Schalk, TL;Sellerholm, A;Sgro, C;Shaw, MS;Shrader, C;Sierpowska-Bartosik, A;Siskind, EJ;Smith, DA;Smith, PD;Spandre, G;Spinelli, P;Starck, JL;Stephens, TE;Strickman, MS;Strong, AW;Suson, DJ;Tajima, H;Takahashi, H;Takahashi, T;Tanaka, T;Thayer, JB;Thayer, JG;**Thompson, DJ**;Tibaldo, L;Tibolla, O;Torres, DF;Tosti, G;Tramacere, A;Uchiyama, Y;Usher, TL;Van Etten, A;Vilchez, N;Vitale, V;Waite, AP;Wallace, E;Wang, P;Watters, K;Winer, BL;Wood, KS;Ylinen, T;Ziegler, M;Fermi LAT Collaboration
Journal: ASTROPHYS J SUPPL SER

Volume: 183

Issue: 1

Page: 46-66

Year: JUL 2009

* Stanford Univ, WW Hansen Expt Phys Lab, Dept Phys, Kavli Inst Particle Astrophys & Cosmol, Stanford, CA 94305 USA.

* Stanford Univ, SLAC Natl Accelerator Lab, Stanford, CA 94305 USA.

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* Stockholm Univ, Dept Astron, SE-10691 Stockholm, Sweden.

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* Univ Trieste, Dipartimento Fis, I-34127 Trieste, Italy.

* Ist Nazl Fis Nucl, Sez Padova, I-35131 Padua, Italy.

* Univ Padua, Dipartimento Fis G Galilei, I-35131 Padua, Italy.

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* Ist Nazl Fis Nucl, Sez Perugia, I-06123 Perugia, Italy.

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* Univ & Politecn Bari, Dipartimento Fis M Merlin, I-70126 Bari, Italy.

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* Univ Bordeaux, Ctr Etud Nucl Bordeaux, UMR 5797, F-33175 Gradignan, France.

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